Proposed Grayson Repowering Project
Unit 9 Separation
Attachment 13 – Demineralized Water Description

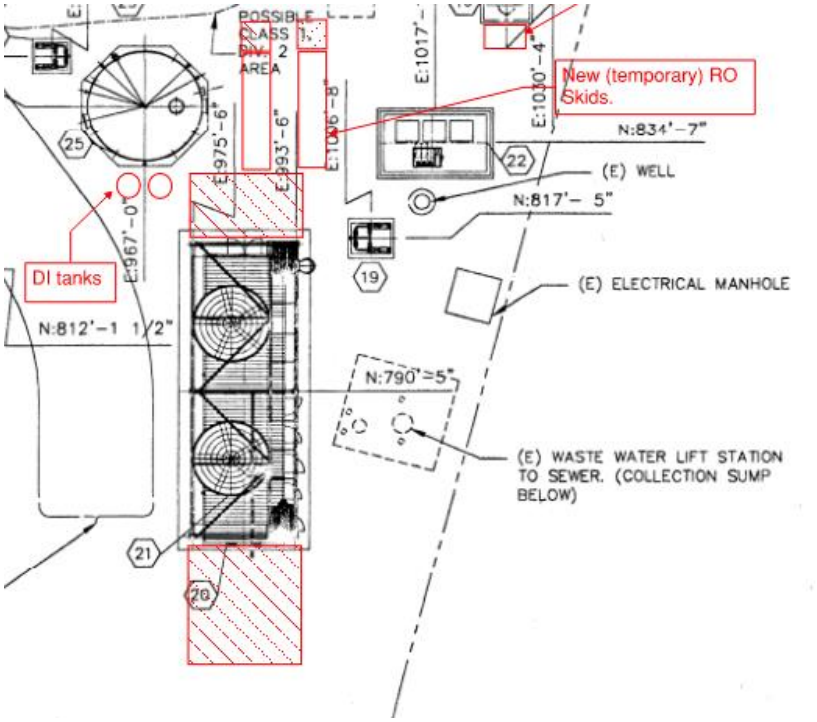
Description

When Unit 9 is separated from the existing facility and the existing water treatment system is decommissioned, a new temporary water treatment system will be needed to maintain a supply of demineralized (demin) water for the plant. City domestic (potable) water will be used as feed water for this temporary setup. The demineralized water product from the new water treatment system will be stored in the existing 40,000 gallon demineralized water storage tank. Wastewater generated by the water treatment system will be handled by the existing wastewater collection system.

The water treatment system consists of chemical feed, reverse osmosis (RO), and ion exchange systems installed on skids for ease of installation. The RO system will have the ancillary equipment needed for a fully functioning system. The ion exchange system will be a temporary system that consists of multiple portable vessels filled with ion exchange resin. The ion exchange system will be periodically removed from site and replaced with new vessels once the resins are exhausted.

Location

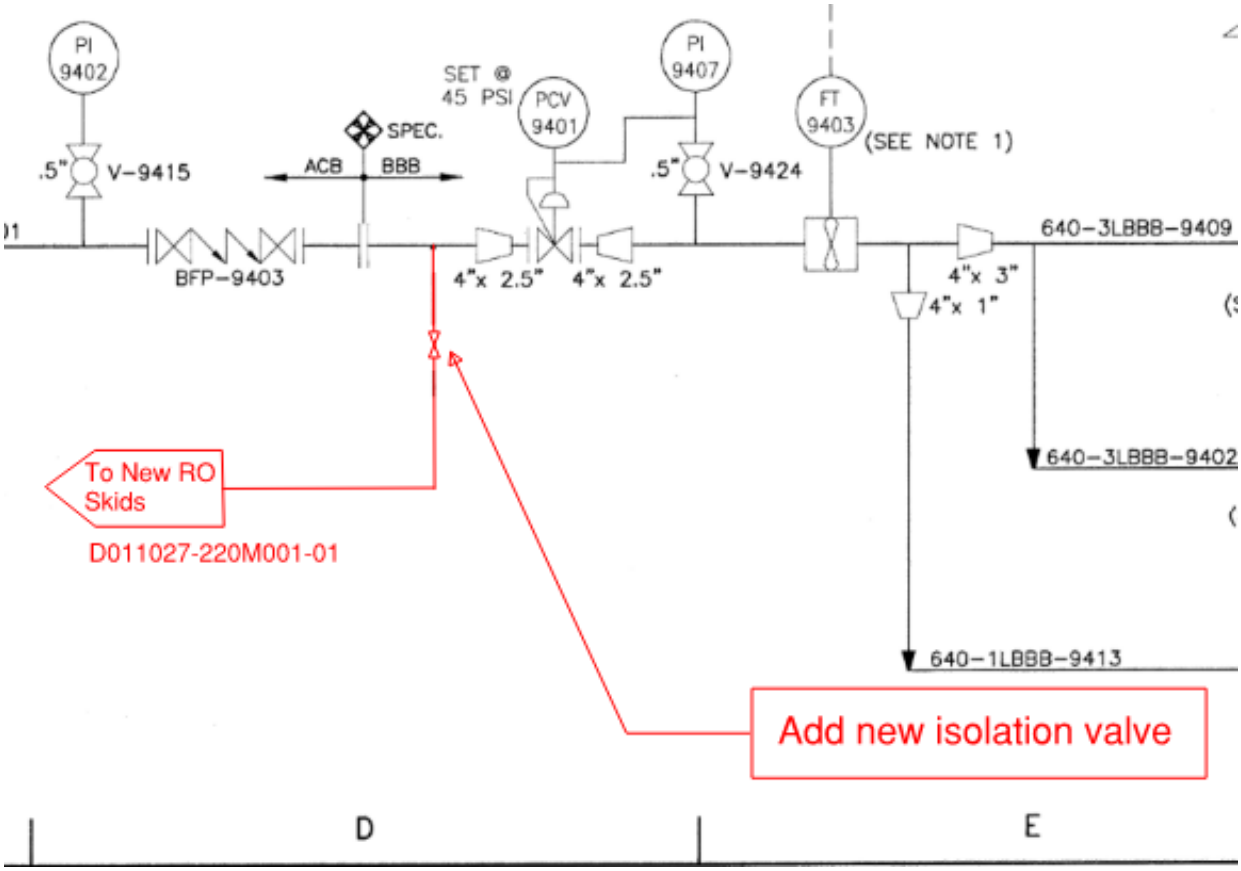
The water treatment equipment will be located east of the Unit 9 cooling tower. The RO units will be installed on temporary cribbing directly east of the cooling tower. The DI tanks will be set directly on the west side of the demineralized water storage tank.



Reference Drawing: D011027-100L100-01

Tie Point Connections

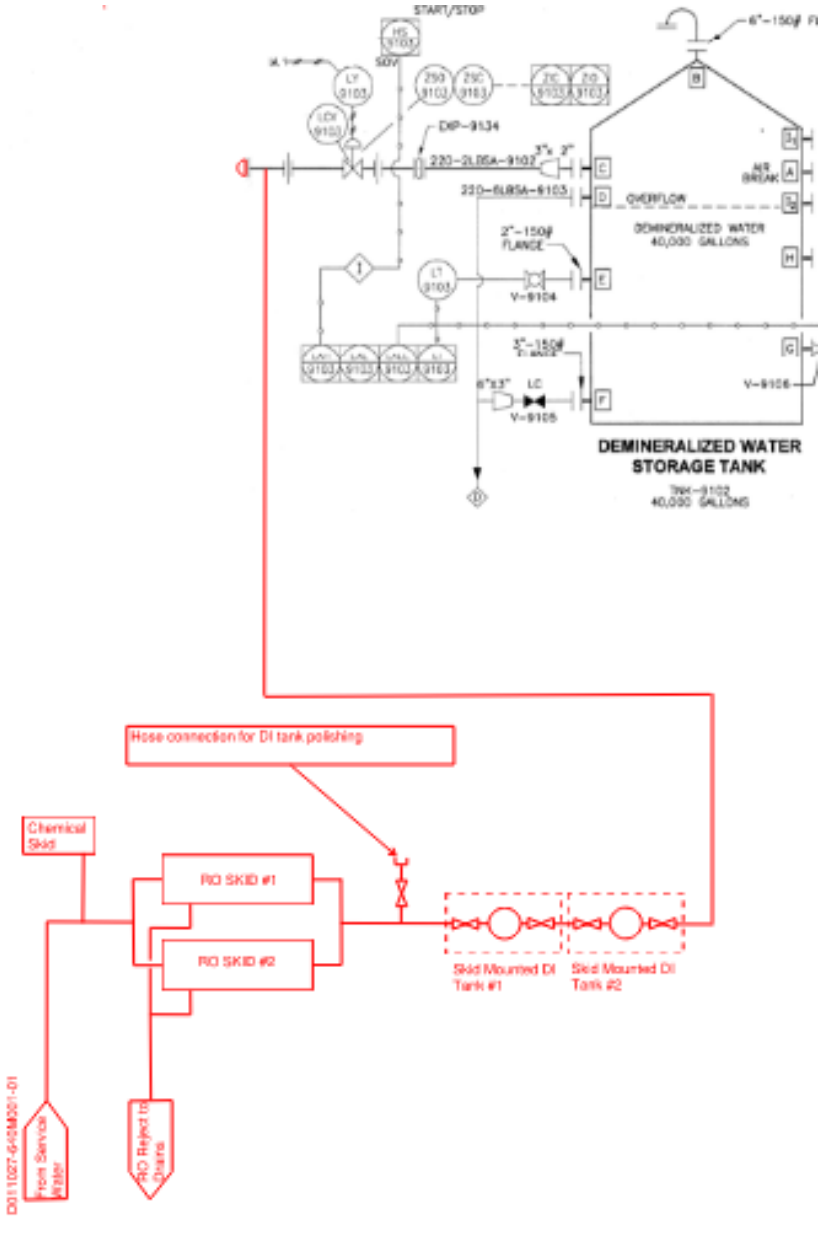
A connection to the existing service water system will be made to supply the new water treatment equipment with a feedwater source. The previously abandoned connection to the Unit 9 cooling tower makeup water line will be used to supply water to the RO skids.



Reference Drawing: D011027-640M001

Proposed Grayson Repowering Project
Unit 9 Separation
Attachment 13 – Demineralized Water Description

A connection in the piping to the demineralized water storage tank will be made to store the product water from the new water treatment system. The proposed location for the connection is in the above ground pipe immediately upstream of level control valve LCV-9103, as shown in D0110127-220M001, below. The existing above ground piping and components in pipe 220-2LBSA-9102, upstream of LCV-9103, will be demolished and the pipe will be capped at grade (Refer to Tie Point TP03 on drawing GPP-00-G-1053 RH - U9 Separation).



Reference Drawing: D011027-220M001

Proposed Grayson Repowering Project
Unit 9 Separation
Attachment 13 – Demineralized Water Description

A connection to the existing wastewater collection system will be made to handle the wastewater generated from the new water treatment equipment. The proposed location to tie into the wastewater collection system is on the northwest side of the Unit 9 cooling tower at BU-118.

Piping

Hose bibs with camlock connections and isolation valves will be provided for feed water supply to and demineralized water product from the water treatment system.

Interconnection between the RO units, the ion exchange vessels, and the existing facility, will use flexible rubber hose with camlock connections to the greatest extent possible. Where pipe is used, long runs from the new temporary system to connections at the existing facility may be buried underground or routed in a pipe trench for protection. The following pipe materials are recommended for the corresponding services when rubber hose cannot be used.

Stainless Steel – Demineralized Water

HDPE – Underground Piping

CPVC/Carbon Steel - Wastewater

A process flow diagram of the modified water treatment system can be found on drawing D011027-220M001.

Electrical/Controls

480VAC feed will be taken from a new, temporary 480V distribution panelboard located near the Unit 9 electrical building (PACE) and routed along the fence on the south side of the plant to the location of the new system. The RO skids have local starters. 120VAC feeds will be routed from the RO skid control panel to the DI vessel regeneration sensors and the chemical feed pumps.

The new system will be controlled locally, based on tank level indication and alarms which will be displayed in the temporary control room.